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EXAMINER
CHEN, CHONGSHAN

ART UNIT	PAPER NUMBER
2172	

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/687,453	VAN DYKE ET AL.	
	Examiner	Art Unit	
	Chongshan Chen	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-31 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-31 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 9-12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688].

Regarding to claim 1, Thessin discloses a method of servicing memory requests from at least one memory client, said requests being directed to a memory subsystem having a plurality of independently operable partitions, comprising:

receiving at least one memory request from said at least one client, said memory request including information specifying a location of requested data in the memory subsystem and a data transfer size for said request (see for example, Thessin, Fig. 9, 901, col. 2, line 66-col. 3, line 10, col. 24, lines 42-46);

determining one or more partitions needed to service said request based on the specified location and transfer size (see for example, Thessin, col. 3, lines 3-6);

routing said request to each of the one or more servicing partitions (see for example, Thessin, col. 3, lines 6-8); and

Thessin does not explicitly disclosing servicing the routed request at each servicing partition independently of the other servicing partitions. Ikeda discloses servicing the routed

request at each servicing partition independently of the other servicing partitions (see for example, Ikeda, col. 9, lines 29-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Thessin's method with Ikeda's method in order to improve the throughput.

Regarding to claim 2, Thessin discloses a method of servicing memory requests from a plurality of memory clients, said requests being directed to a memory subsystem having a plurality of independently operable partitions each with a queue for each of the memory clients, comprising:

receiving a plurality of memory requests from the plurality of clients, each of said memory request including information specifying a location of requested data in the memory subsystem and a data transfer size for said request (see for example, Thessin, Fig. 9, 901, col. 2, line 66-col. 3, line 10, col. 24, lines 42-46);

determining for each request one or more partitions needed to service said request based on the specified location and transfer size (see for example, Thessin, col. 3, lines 3-6);

routing to and storing each of said requests in the client queues of the one or more servicing partitions (see for example, Thessin, col. 3, lines 6-8);

selecting based on a priority policy, a request from one of the client queues for servicing (see for example, Thessin, col. 3, lines 1-8).

Thessin does not explicitly disclosing servicing a request at each servicing partition independently of the other servicing partitions. Ikeda discloses servicing the routed request at each servicing partition independently of the other servicing partitions (see for example, Ikeda, col. 9, lines 29-39). Therefore, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to combine Thessin's method with Ikeda's method in order to improve the throughput.

Regarding to claim 9, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, and further discloses performing an address translation of the location specified in said request (see for example, Ikeda, Fig. 3, col. 2, lines 30-43).

Regarding to claim 10, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, and further discloses prior to determining the one or more partitions for each request, selecting one of said requests from a subset of the plurality of clients based on a priority policy; and wherein the step of determining the one or more partitions for each request includes determining the one or more partitions for the prioritized request (see for example, Thessin, col. 3, lines 1-10).

Regarding to claim 11, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, and further discloses

wherein one of the memory clients makes high priority requests (see for example, Thessin, Fig. 17); and

further comprising the step of, subsequent to selecting a request from one of the client queues for servicing, selecting one of the selected requests and the high priority requests for servicing by a partition (see for example, Thessin, col. 3, lines 1-10).

Regarding to claim 12, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, and further discloses

prior to determining the one or more partitions for each request, selecting one of said requests from a subset of the plurality of clients based on a priority policy (see for example,

Thessin, Fig. 17, col. 3, lines 1-10), wherein each client in the subset has a sub-request ID (see for example, Ikeda, Fig. 4, col. 4, lines 42-52);

wherein the step of routing to and storing each of the requests in the client queues of the one or more servicing partitions includes storing, in the client queue, the sub-request ID along with the selected request of the subset, the selected request being a read request; and wherein the step of servicing the read request at each of the servicing partitions includes: enqueuing the sub-request ID together with the read data from the servicing partitions; and routing the read data to the selected client in the subset based on the enqueued sub-request ID (see for example, Thessin, col. 3, lines 1-10; Ikeda, col. 7, lines 19-41).

Regarding to claim 14, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, and further discloses

wherein at least one of the memory clients is a client that makes requests only to a single partition; and wherein the step of routing to and storing, independently of the other requests, each of said requests in the client queues of the one or more servicing partitions includes routing to and storing the single-partition requests in the client queue of the single partition (see for example, Thessin, col. 3, lines 1-10).

Regarding to claim 15, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, and further discloses

wherein one of the memory requests is a read request (see for example, Ikeda, col. 4, lines 45-46); and

wherein the step of servicing a request includes: determining when a partition servicing the read request has obtained said requested data; and transferring said requested data from the partition to the memory client (see for example, Ikeda, col. 4, lines 24-64).

Regarding to claim 16, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 15, and further discloses

wherein the step of routing to and storing each of the requests in the client queues of the one or more servicing partitions includes appending to the selected read request, sequence count, starting partition, and transfer size information (see for example, Ikeda, col. 7, lines 24-36);

wherein the step of servicing a request further includes subsequent to determining when a partition servicing the read request has obtained said requested data, appending to said requested data, sequence count, starting partition, and transfer size information obtained from the selected read request; and wherein the step of transferring said requested data from the partition to the memory client includes accessing the appended sequence count, the starting partition, and the transfer size information to determine when said requested data is available to be sent to the client (see for example, Ikeda, col. 4, lines 24-64).

3. Claims 3, 7, 23, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Guthrie et al. ["Guthrie", US Patent, 5,905,877].

Regarding to claim 3, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, except for explicitly disclosing the priority policy is a static policy. Guthrie discloses the priority is a static policy (see for example, Guthrie, col. 8, lines 35-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made

to combine the method of Thessin and Ikeda with the method of Guthrie in order to determine the order of requests.

Regarding to claim 7, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 2, except for explicitly disclosing the priority policy is a dynamic policy. Guthrie discloses the priority is a dynamic policy (see for example, Guthrie, col. 8, lines 35-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Thessin and Ikeda with the method of Guthrie in order to determine the order of requests.

Claim 23 is rejected on grounds corresponding to the reasons given above for claim 3.

Claim 27 is rejected on grounds corresponding to the reasons given above for claim 7.

4. Claims 4, 5, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Guthrie et al. ["Guthrie", US Patent, 5,905,877] and Brash et al. ["Brash", US Patent, 5,485,586].

Regarding to claim 4, Thessin, Ikeda, and Guthrie teach all the claimed subject matters as discussed in claim 3, except for explicitly disclosing the policy is a least recently used policy. Brash discloses the policy is a least recently used policy (see for example, Brash, col. 1, lines 26-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the priority policy as least recently used policy. One of ordinary skill in the art would have been motivated to do this since the least recently used policy is well known and maintains historical information regarding previous bus masters as part of its algorithm.

Regarding to claim 5, Thessin, Ikeda, and Guthrie teach all the claimed subject matters as discussed in claim 3, except for explicitly disclosing the policy is a round-robin policy. Brash discloses the policy is a round-robin policy (see for example, Brash, col. 1, lines 26-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the priority policy as round-robin policy. One of ordinary skill in the art would have been motivated to do this since the round-robin policy is well known and maintains historical information regarding previous bus masters as part of its algorithm.

Claim 24 is rejected on grounds corresponding to the reasons given above for claim 4.

Claim 25 is rejected on grounds corresponding to the reasons given above for claim 5.

5. Claim 6 and 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Guthrie et al. ["Guthrie", US Patent, 5,905,877] and Courtright, II et al. ["Courtright", US Patent, 6,157,963].

Regarding to claim 6, Thessin, Ikeda, and Guthrie teach all the claimed subject matters as discussed in claim 3, except for explicitly disclosing the policy is a fixed priority policy. Courtright discloses the policy is a fixed priority policy (see for example, Courtright, col. 6, lines 1-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the priority policy as fixed priority policy. One of ordinary skill in the art would have been motivated to do this since the fixed priority policy is well known and determines the order of request.

Claim 26 is rejected on grounds corresponding to the reasons given above for claim 6.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Guthrie et al. ["Guthrie", US Patent, 5,905,877] and Williams [US Patent, 5,898,895].

Regarding to claim 8, Thessin, Ikeda, and Guthrie teach all the claimed subject matters as discussed in claim 7, except for explicitly disclosing the policy is one that is selected from the group consisting of a round-robin policy, a fixed priority policy, and a least recently used policy. Williams discloses the policy is one that is selected from the group consisting of a round-robin policy, a fixed priority policy, and a least recently used policy (see for example, Williams, col. 5, lines 49-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the priority policy based on round-robin, fixed, and least recently used policy in order to determine the order of requests.

7. Claim13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Chin et al. ["Chin", US Patent, 6,202,101].

Regarding to claim 13, Thessin and Ikeda teaches all the claimed subject matters as discussed in claim 2, and further discloses

prior to determining the one or more partitions for each request, selecting one of said requests from a subset of the plurality of clients based on a priority policy (see for example, Thessin, Fig. 17, col. 3, lines 1-10), wherein each client in the subset has a sub-request ID (see for example, Ikeda, Fig. 4, col. 4, lines 42-52);

wherein the step of routing to and storing each of the requests in the client queues of the one or more servicing partitions includes storing, in the client queue, the sub-request ID along

with the selected request of the subset, the selected request being a read request; and wherein the step of servicing the read request at each of the servicing partitions includes: routing the read data to the selected client in the subset based on the enqueued sub-request ID (see for example, Thessin, col. 3, lines 1-10; Ikeda, col. 7, lines 19-41).

Thessin and Ikeda do not explicitly disclosing enqueuing the sub-request ID separately from the read data for the selected client in the subset. Chin discloses separating the sub-request ID from the read for the selected client (see for example, Chin, col. 6, lines 62-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Thessin and Ikeda with the method of Chin in order to separate the sub-request ID from the read for the selected client.

8. Claims 17-19, 22, 28, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688].

Regarding to claim 17, Thessin discloses a memory system for servicing memory requests from a plurality of memory clients, comprising:

a plurality of memory partitions each operable to service a memory request, the memory request including information specifying a location of requested data in the memory subsystem and a data transfer size for said request (see for example, Thessin, Fig. 9, 901, col. 2, line 66 – col. 3, line 10, col. 24, lines 42-46);

a plurality of routing circuits, one routing circuit connected to each memory client and to the client queues, each routing circuit operative to determine for each request one or more partitions needed to service said request based on the specified location and transfer size, each

routing circuit operative to route and store each of said requests in the client queues of the one or more servicing partitions; and a plurality of arbiter circuits, one arbiter circuit connected to each partition queue and to the client queues for the partition, each arbiter circuit operative to select based on a priority policy, a request for servicing from one of the client queues for the partition, and to transfer each of the selected requests, independently of the other selected requests, to the partition for each of the one or more servicing partitions (see for example, Thessin, col. 3, lines 1-10, col. 25, line 51- col. 26, line 5).

Thessin does not explicitly disclosing a plurality of client queues, one for each memory client and each partition; and servicing the routed request at each servicing partition independently of the other servicing partitions. Ikeda discloses a plurality of client queues, one for each memory client and each partition (see for example, Ikeda, col. 11, lines 42-43); and servicing the routed request at each servicing partition independently of the other servicing partitions (see for example, Ikeda, col. 9, lines 29-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Thessin with the method of Ikeda in order to improve the throughput.

Regarding to claim 18, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 17, and further discloses a memory system for servicing memory requests from a plurality of memory clients as recited in claim 17,

wherein one of said memory requests is a memory read request that requires one or more partitions to provide read data that makes up the read request; wherein each partition in the memory subsystem provides a data valid signal that indicates when read data is available from the partition (see for example, Ikeda, col. 4, lines 24-51); and

further comprising:

a plurality of read queues, one connected to each partition to receive and store said requested read data that is provided by the partition; a plurality of queue controllers, each connected to one of the partitions to receive the data valid signal and to one of the read queues to control the read queue, each queue controller producing an indicator of the state of each read queue (see for example, Ikeda, Fig. 1 & 3, col. 4, lines 24-64);

a side queue that holds data indicating the starting partition and the number of partitions providing read data for the reference; multiplexer circuitry having a plurality of inputs, each connected to one of the read queues, the multiplexer circuitry operative to select one of the read queues for output to a particular memory client in response to at least one multiplexer selection control line; and a control circuit connected to the side queue to receive data from the side queue, to each of the plurality of queue controllers to receive the status indicators, and to said at least one multiplexer selection control line, the control circuit using said selection control line to select, in response to a status indicator from a queue controller and the data in the side queue, the queue for output to the particular client, starting with the queue for the partition indicated by the side queue (see for example, Ikeda, Fig. 1-3).

Regarding to claim 19, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 17, and further discloses a memory system for servicing memory requests from a plurality of memory clients as recited in claim 17,

wherein one of said memory requests is a memory read request that requires one or more partitions to provide read data for said read request; further comprising a sequence counter for each memory client, the sequence counter operative to increment a sequence count for each

request made by the client to provide a tag for tracking each said read request; wherein each partition in the memory subsystem provides a data valid signal that indicates when read data is available from the partition and makes available said sequence count, and data indicating the starting partition and the number of partitions providing read data for the reference with data valid signal and read data from the partition (see for example, Ikeda, col. 4, lines 24-64);

wherein each routing circuit provides a starting partition and burst size information for said read request (see for example, Ikeda, Fig. 3); and

further comprising:

a plurality of read queues, one connected to each partition to receive and store the requested read data that is provided by the partition for said read request and to store with the requested read data the sequence count, the starting partition and burst size for said read request; a plurality of queue controllers, each connected to one of the partitions to receive the data valid signal and to one of the read queues to control the read queue, each queue controller producing an indicator of the state of each read queue; multiplexer circuitry having a plurality of inputs, each connected to one of the read queues, the multiplexer circuitry operative to select one or more of the read queues for output to a particular memory client in response to at least one selection control line; and a control circuit connected to the read queues to receive control data, including said sequence count, data indicating starting partition and number of partitions providing read data for the reference, from the read queues, to each of the plurality of queue controllers to receive the status indicators, and to said at least one selection control line, the control circuit using said selection control line to select, in response to a status indicator from a queue controller and the sequence count, starting partition and burst size in the read queues, the

queue for output to the particular client, starting with the queue for the partition indicated by the read queues (see for example, Ikeda, Fig. 1-3, col. 4, lines 24-64).

Regarding to claim 22, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 18, and further discloses a memory system for servicing memory requests from a plurality of memory clients as recited in claim 18,

wherein there is one partition that services the read request, the servicing partition has a data bus with a particular width for carrying the partition data; wherein the transfer size specified in the request is smaller that the width of the databus of the servicing partition; and wherein the multiplexer circuitry includes: an output multiplexer for transferring read data to the client; and a plurality of interfacing multiplexers, each connected to one of the read queues and the control circuit, wherein each interfacing multiplexer is operative to sequentially select a first portion and second portion of the databus to send data to the output multiplexer (see for example, Thessin, col. 3, lines 1-10, Ikeda, col. 4, lines 24-64).

Regarding to claim 28, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 17, and further discloses performing an address translation of the location specified in said request (see for example, Ikeda, Fig. 3, col. 2, lines 30-43).

Regarding to claim 31, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 17, and further discloses

wherein at least one of the memory clients is a client that makes requests only to a single partition; and wherein the routing circuit routes the single-partition request to the client queue of the single partition (see for example, Thessin, col. 3, lines 1-10).

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Brash et al. ["Brash", US Patent, 5,485,586].

Regarding to claim 20, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 18, except for explicitly disclosing wherein a client accepts data in an order that is non-sequential; and wherein the read queue controllers control the read queues to produce data in a non-fifo order to provide read data in the order in which a client accepts the read data. Brash discloses wherein a client accepts data in an order that is non-sequential; and wherein the read queue controllers control the read queues to produce data in a non-fifo order to provide read data in the order in which a client accepts the read data (see for example, Brash, col. 1, lines 26-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Thessin, Ikeda, and Brash in order to provide read data in the order the client accepts.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Childers et al. ["Childers", US Patent, 5,625,778]

Regarding to claim 21, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 18, except for explicitly disclosing wherein one of the side queue and read queue contains information indicating that a burst of read data is required of each servicing partition; and wherein the multiplexer circuitry includes:

an output multiplexer for transferring read data to the client; and

a plurality of burst registers each connected to one of the read queues and the control circuit, for holding some or all of the burst data in response to the control circuit, wherein the multiplexer circuitry is operative to additionally select one of the burst registers to transfer read data to the output multiplexer.

Childers discloses wherein one of the side queue and read queue contains information indicating that a burst of read data is required of each servicing partition; and wherein the multiplexer circuitry includes: an output multiplexer for transferring read data to the client; and a plurality of burst registers each connected to one of the read queues and the control circuit, for holding some or all of the burst data in response to the control circuit, wherein the multiplexer circuitry is operative to additionally select one of the burst registers to transfer read data to the output multiplexer (see for example, Childers, Fig. 2, col. 6, lines 7-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Thessin, Ikeda, and Childers in order to transfer a block of data without a break.

11. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thessin et al. ["Thessin", US Patent, 5,452,299] in view of Ikeda et al. ["Ikeda", US Patent, 5,623,688] and Grzenda et al. ["Grzenda", US Patent, 5,923,826]

Regarding to claim 29, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 17, except for explicitly disclosing an arbiter that connects to at least one routing circuit to select one of said requests from a subset of the plurality of clients based on a priority policy and to forward that request to the routing circuit. Grzenda discloses an arbiter that connects to at least one routing circuit to select one of said requests from a subset of the

plurality of clients based on a priority policy and to forward that request to the routing circuit (see for example, Grzenda, Fig. 3, col. 8, lines 38-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Thessin, Ikeda, and Grzenda in order to process the highest pending priority request.

Regarding to claim 30, Thessin and Ikeda teach all the claimed subject matters as discussed in claim 17, except for explicitly disclosing one of the memory clients makes high priority requests; and further comprising a plurality of secondary arbiters, each connected to the client queue having the high priority request and the arbiter for each of the partitions to select one of the selected requests and the high priority requests for storage in the partition queue of each partition. Grzenda discloses secondary arbiters, each connected to the client queue having the high priority request and the arbiter for each of the partitions to select one of the selected requests and the high priority requests for storage in the partition queue of each partition (see for example, Grzenda, Fig. 3, col. 8, lines 42-54). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Thessin, Ikeda, and Grzenda in order to process pending requests.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chongshan Chen whose telephone number is (703) 305-8319. The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on (703)305-4393. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

CC
October, 18, 2002

SHAHID AL ALAM
PATENT EXAMINER